

Claims

[c1] 1. A temperature control apparatus for a pulse width modulation (PWM) device comprising:
a temperature detector installed around the PWM device for detecting a present working temperature of the PWM device; and
a temperature comparator coupled to the temperature detector and the PWM device for comparing the present working temperature with a maximum limiting temperature and a minimum limiting temperature, wherein when the present working temperature is higher than the maximum limiting temperature, a working frequency of the PWM device will be reduced in a step variation frequency, and when the present working temperature is lower than the minimum limiting temperature, the working frequency of the PWM device will be increased in the step variation frequency.

[c2] 2. A temperature control apparatus of claim 1, wherein when the present working temperature is between the maximum limiting temperature and the minimum limiting temperature, the working frequency of the PWM device will not be changed.

- [c3] 3.A temperature control apparatus of claim 1, wherein the maximum limiting temperature, the minimum limiting temperature, and the step variation frequency are adjustable.
- [c4] 4.A temperature control apparatus of claim 1, wherein the working frequency will not be changed during a pre-determined period after the last change of the working frequency.
- [c5] 5.A temperature control apparatus of claim 1, wherein the PWM device provides a current for a central processing unit.
- [c6] 6.A method for controlling the temperature of a PWM device comprising:
 - detecting a present working temperature of the PWM device;
 - when the present working temperature is higher than a maximum limiting temperature, reducing a working frequency of the PWM device in a step variation frequency; and
 - when the present working temperature is lower than a minimum limiting temperature, increasing the working frequency of the PWM device in the step variation frequency.

- [c7] 7.A method of claim 6, wherein when the present working temperature is between the maximum limiting temperature and the minimum limiting temperature, the working frequency will not be changed.
- [c8] 8.A method of claim 6, wherein the maximum limiting temperature, the minimum limiting temperature, and the step variation frequency are adjustable.
- [c9] 9.A method of claim 6, wherein the working frequency will not be changed during a predetermined period after the last change of the working frequency.
- [c10] 10.A method of claim 6, wherein the PWM device provides a current for a central processing unit.